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ABSTRACT

This report describes a plan that demonstrates how a vocational program with traditional curriculum can be gradually changed to performance-based curriculum without disrupting the efficient operation of the existing program. The plan outlines the performance-based vocational education (PBVE) program management system, curriculum development procedures, and an implementation process developed and implemented in the New Castle (Indiana) Area Vocational School. The report discusses the background and rationale for using PBVE; and procedures for developing a PBVE management plan, organizing the school for PBVE, developing the PBVE curriculum, and implementing the program. It also shows how the PBVE curriculum can provide a means for students to articulate from secondary to postsecondary programs. Figures outline each PBVE management plan development and implementation section. Appendixes include samples of materials developed. (Author/KC)

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INFORMATION SERIES NO. 11
A PROJECT REPORT

A LOCAL SCHOOL IMPLEMENTATION PLAN FOR PERFORMANCE BASED VOCATIONAL EDUCATION

written by

Shirley F. Smalley

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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ABSTRACT

This report describes a plan which demonstrates how a vocational program with traditional curriculum can be gradually changed to performance based curriculum without disrupting the efficient operation of the existing program. The plan outlines the performance based vocational education (PBVE) program management system, curriculum development procedures, and implementation process developed and implemented in the New Castle Area Vocational School (NCAVS).

Each section of the PBVE management plan discusses techniques used, citing PBVE programs developed and implemented and identifying the problems encountered in implementation. The method used to demonstrate that PBVE curriculum can provide a means for students to articulate from secondary to postsecondary programs is also discussed.

Figures outline each PBVE management plan development and implementation section. Appendixes include samples of materials developed.

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S.F.S.

CHAPTER I

Introduction

Background

The New Castle Area Vocational School (NCAVS) began operation in 1971 with four vocational programs and grew to have twelve vocational programs by 1979. The curriculum development for these programs was inconsistent. In a 1978 needs assessment, the staff identified curriculum development to be the school's priority need.

During the years 1975-1977 the New Castle Community School Corporation served as the local education agency (LEA) for a performance based health occupations curriculum project entitled, Project H.O.P.E. (Health Occupations Program Education). Involvement with this project introduced the entire school staff at NCAVS to the concept of performance based vocational education (PBVE).

Why PBVE?

The NCAVS administration's review of current research literature supported the development of performance based curriculum for vocational schools. The administration and staff's assessment of advantages and disadvantages of PBVE follows.

PBVE's advantages are that:

1. Training is based on job title and/or cluster of job titles.
2. Employed workers validate tasks used in training.
3. Industrial standards are the accepted level of performance for training.
4. Standards of performance are given to students before training.
5. A task must be mastered before proceeding to the next.

6. Students can test out of skills already mastered.

7. Students can select thei· best methods of learning.

8. Students can reduce and adjust their training time to meet their personal time lines.

9. It can supply quality vocational training for students with different functional levels.

10. The quantity and quality of equipment needed to train students are easily identified.

11. Equipment and facilities are used to maximum capacity.

12. Program excellency is dependent on a curriculum plan, not on an individual teacher.

13. The functional level of the individual can be determined.

PBVE's disadvantages, which are few but serious, are that it requires:

1. A great amount of time to prepare PBVE curriculum for an individual program area.

2. A depth of commitment by the staff to become involved in developing PBVE curriculum.

The administration and staff decided the advantages of PBVE outweighed the disadvantages. They agreed to give the time and commitment needed to this method, which they saw as a means to develop quality vocational programs. In 1978, the NCAVS applied and received a State Board of Vocational and Technical Education (SBVTE) grant to develop and implement a curriculum management plan for PBVE that could be used by a secondary or postsecondary vocational school.

Resources for the local management plan

The foundation chosen for the local management plan was the Indiana PBVE Management System, which was developed by the state's Curriculum Specialists Consortium (West & Hornback, 1978). The Indiana V-TECS coordinator and the SBVTE curriculum coordinator explained to project staff the state's multi-occupational PBVE program plan. Existing PBVE programs and state and national research reports provided guidance in

developing the local plan, including research projects by the State of Indiana (1975, 1976, 1977) and domain catalogs developed by the Vocational-Technical Education Consortium of States (V-TECS) (1975). The teacher guides and training modules developed by Florida State University (1976) and the Ohio State University (1978) were invaluable resources for inservice training of the local staff. An on-site visit to Hennepin Area Vocational and Technical Center, Minneapolis, Minnesota gave insight into operational problems that can arise when implementing a performance based management system in a local school.

Assumptions about PBVE

The SBVTE specifies that PBVE curriculums be based on job research which identifies course content through task analysis, which establishes instructional content in terms of learning content limits, and which assesses student progress through the use of performance tests (West & Hornback, 1978). The NCAVS staff studied the SBVTE system and made the following assumptions about PBVE:

1. Students differ in goals, aptitudes, objectives, and motivation.

2. Identification of tasks performed by a job holder is the first step in developing an efficient vocational education curriculum.

3. Successful performance of tasks depends on the student learning the knowledge, skills, and attitudes accepted by the world of work.

4. Efficiency of learning depends on specification of the performance expected of students before training.

5. Effective progress can be maintained by organizing the tasks to be taught into a flexible sequence permitting students to proceed at their own rates.

Project objectives and scope

The curriculum project's objectives were to: (1) develop a local curriculum management plan for implementing PBVE in a vocational school, (2) develop and implement a performance based curriculum in four vocational programs at the NCAVS, and (3) demonstrate the ability of the PBVE system to permit student articulation between secondary and postsecondary vocational programs.

The scope of the project required the local management plan to include sections on staff inservice procedures, advisory committee organization, an evaluation process, a recording system, and curriculum development techniques. The project required that the management plan be field tested to check its feasibility and that the final report include problems encountered in developing and implementing the performance based curriculum. A glossary of PBVE terms used by the project is included on page 67.

CHAPTER II

Procedures

Developing a PBVE management plan

After studying the available data and assessing specific problems related to PBVE management plans, the principal investigator designed a local PBVE management plan which complies with the Indiana PBVE Management System and established a timeline for implementing the local plan. Figure 1 outlines the process used to develop and implement PBVE curriculums in the NCAVS.

Conducting inservice

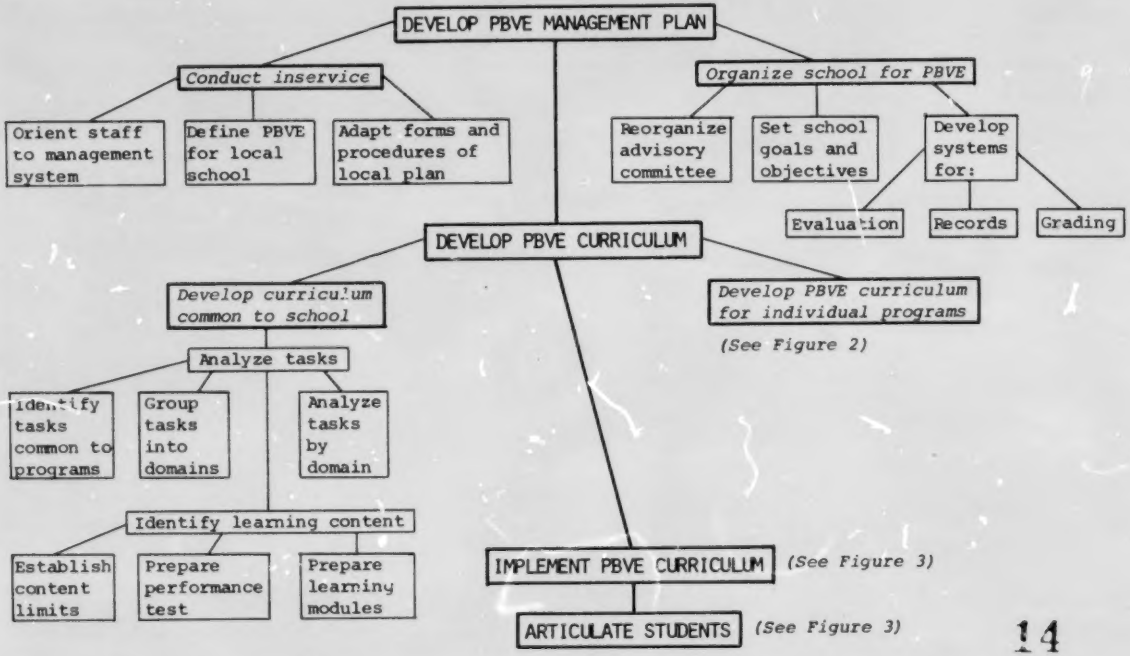
The principal investigator presented the local management plan to the NCAVS staff in three inservice meetings which oriented them to the overall plan. Staff and administrators were involved in every major decision about implementing the plan. They worked together to develop and adopt the school's definition of PBVE which follows: *PBVE is a program which requires students to demonstrate the knowledge, skills, and attitudes necessary to perform tasks that have been identified as essential to a job title.* The staff reviewed, critiqued, and adapted all forms and procedures of the local management plan before they began to use it.

Organizing the school for PBVE

After using the inservice training module, *Organize an Occupational Advisory Committee* (Ohio State, 1978), the staff adopted a uniform format for organizing and maintaining local PBVE committees. The next step was to prepare school goals and objectives that would comply with the PBVE definition established by the staff. They prepared for this task by using the inservice training module, *Develop Program Goals and Objectives* (Ohio State, 1978).

The principal investigator established a school evaluation system which includes a formative evaluation by students of each

FIGURE 1: Local management plan for performance based vocational education (PBVE)



segment of the training program (Appendix A); a formative evaluation by teachers of each course, based on students' formative evaluations (Appendix B); and an evaluation of cooperative training stations, if appropriate (Appendix C). The evaluation process allows the program advisory committee to review yearly the teachers and the training station evaluations and make recommendations for change to the instructors. This type of evaluation system provides for constant revision of the total occupational program so that it remains viable and relevant to the students and industry.

A recording system (Appendix D) and a grading system (Appendix E) were developed and used only in the health occupations program because the other occupational programs were not ready for final program implementation.

When the local plan was complete, the staff developed an extensive student management module to orient the student to PBVE. The module provides an introduction to PBVE, an explanation of how the PBVE program works, an individual plan for student training, and an explanation of the grading system.

Developing PBVE curriculum

Developing curriculum common to the school

Analyzing tasks

With the local management plan complete, the NCAVS staff began developing the PBVE curriculum. They used a brainstorming technique to identify tasks common to all vocational programs in the school. These were the tasks students must learn before obtaining employment in any vocational area. The staff grouped these tasks which were identified as common to the school into domains, listed the domains in priority order for curriculum development, and analyzed each task.

Identifying learning content

On the basis of the analyses of tasks common to all programs, the principal investigator identified the learning content and prepared performance based curricular materials for five groups of similar tasks: (1) student management; (2) first aid, (3) preemployment: select a job title for vocational training, (4) preemployment: get your personal records in order prior to obtaining a job, and (5) preemployment: fill out a job application. The preparation of the material involved

establishing content limits for the learning content, preparing a performance test, and developing learning modules. Although a learning module can address either one or more tasks in the domain, only one test is required for the entire domain.

Developing PBVE curriculum for individual programs

A job title can be found in the *Dictionary of Occupational Titles* and/or determined by analysis of the labor market. For this project four job titles from four different occupational areas were selected for curriculum development: clerk-typist, food service attendant, nurse aide/orderly, and machinist apprentice. Once the job titles had been identified in each occupational area, they needed to be grouped by some means for curriculum development. Although curriculum development occurred for all four job titles, only the health occupations curriculum material was selected for use in field testing the total PBVE local management plan. Figure 2 outlines the process used to develop PBVE curriculum for individual programs in the NCAVS.

Preparing a local occupational matrix

In Indiana's PBVE system, a matrix is a scheme for classifying and grouping job titles of the same occupational area for the purpose of curriculum development. Job titles in a matrix are grouped on the basis of common tasks performed to achieve a specific occupational requirement. The state is developing a matrix for each occupational area which groups tasks common to job title categories and to specific job titles. The project used the available matrixes and developed the others.

After each state matrix was obtained or prepared, the project staff adapted it for local use. First, they conducted a community survey to determine what job titles were available in the local job market. In the community served by the NCAVS, many people drive out of the county to work, so the staff sent surveys to businesses in Indiana Manpower Regions 6, 8, and 10 in order to collect accurate data for curriculum planning. The community survey used was adapted to include local criteria from the module, *Conduct a Community Survey* (Ohio State, 1978). The instrument is in Appendix F. The population surveyed included:

1. Private and public businesses.

2. Businesses of varying size (1-5 employees=*small*, 6-25 employees=*medium*, 26 employees or more=*large*).

The staff hand tallied the returned surveys and prepared a summary report which served as the data base for developing the local program matrix (Appendix G). The local matrix included only the job titles appropriate for the community. The NCAVS health occupations matrix is shown in Appendix H.

Selecting job titles for training program

The local school administration selected which job title or clusters of job titles should be offered as training programs in the school. The local occupational matrix provided the primary data from which the administration could make that decision. For example, the local business education survey identified the job title *clerk-typist* to be in greatest demand in the community; therefore, training for that job title was included in the intensive office lab program. In addition, the characteristics of the local student population helped staff select job titles. They considered such criteria as the students' ages, educational backgrounds, goals, and objectives when deciding which level of training to offer, for example, registered nurse, license practical nurse, or nurse aide.

Selecting tasks for curriculum development

Once the job title(s) had been selected for training, the staff obtained or prepared an inventory list of tasks performed by job holders. Task inventory lists are available for some job titles from such sources as V-TECS catalogs, professional organizations and/or unions, and research clearinghouses. When task inventories are not available, they must be generated by interviewing workers.

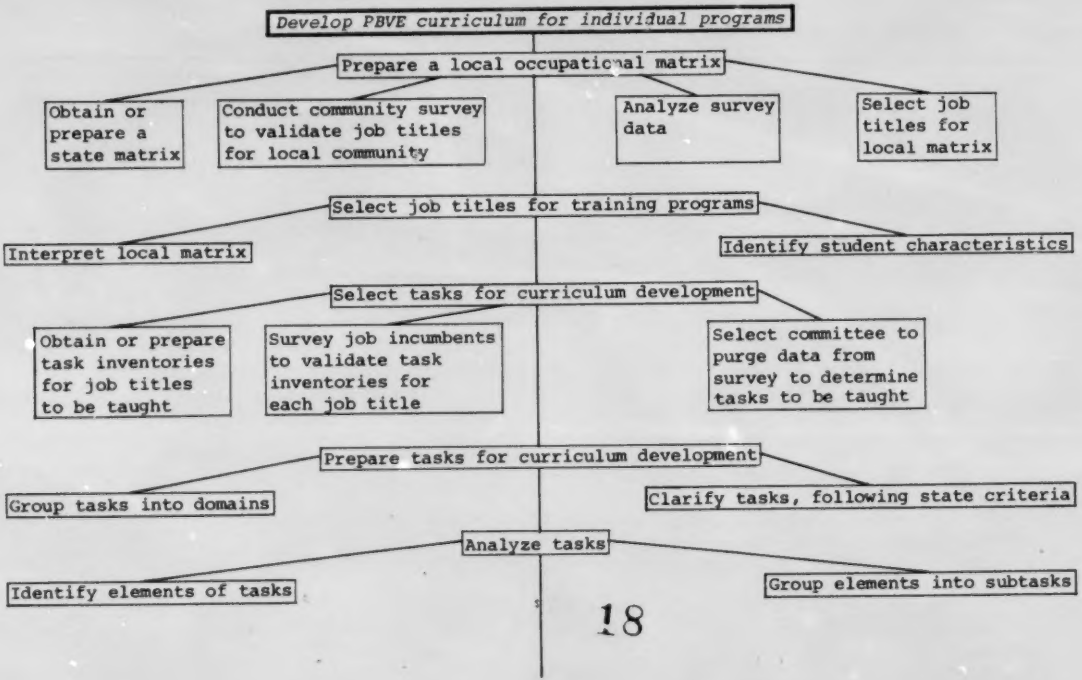
The staff verified each task list using state and/or local workers. Since no means were available for computer analyses of the survey data, the principal investigator of the local project prepared and distributed a questionnaire that asked only if the worker did or did not perform the task on the job.

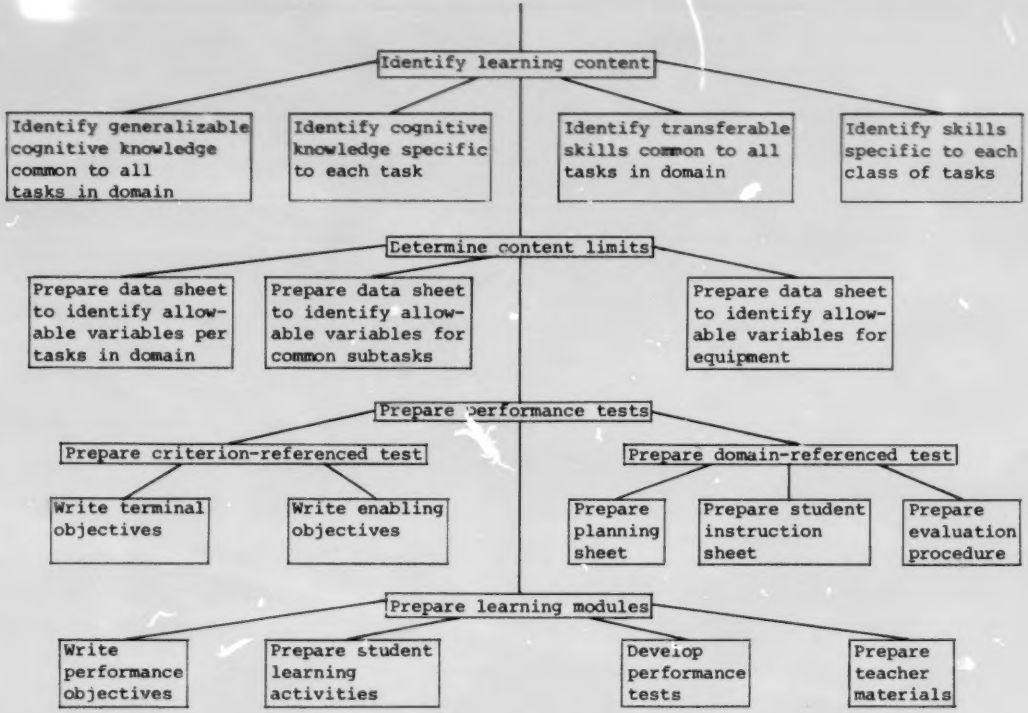
A purge committee of workers, who were noted in the local community for expertise in their occupational areas, reviewed the data collected from the questionnaires to determine which tasks whould be included in the curriculum. The criteria they used is in Appendix I.

Preparing tasks for curriculum development

The tasks selected for the curriculum were grouped into domains or teaching units which identified the tasks that had

FIGURE 2: Local management plan for PBVE; individual programs section


Develop PBVE curriculum for individual programs
Prepare a local occupational matrix
Obtain or prepare a state matrix
Conduct community survey to validate job titles for local community
Analyze survey data
Select job titles for local matrix
Select job titles for training programs
Interpret local matrix
Identify student characteristics
Select tasks for curriculum development
Obtain or prepare task inventories for job titles to be taught
Survey job incumbents to validate task inventories for each job title
Select committee to purge data from survey to determine tasks to be taught
Prepare tasks for curriculum development
Group tasks into domains
Clarify tasks, following state criteria
Analyze tasks
Identify elements of tasks
Group elements into subtasks


Identify learning content
Identify generalizable cognitive knowledge common to all tasks in domain
Identify cognitive knowledge specific to each task
Identify transferable skills common to all tasks in domain
Identify skills specific to each class of tasks
Determine content limits
Prepare data sheet to identify allowable variables per tasks in domain
Prepare data sheet to identify allowable variables for common subtasks
Prepare data sheet to identify allowable variables for equipment
Prepare performance tests
Prepare criterion-referenced test
Prepare domain-referenced test
Write terminal objectives
Write enabling objectives
Prepare planning sheet
Prepare student instruction sheet
Prepare evaluation procedure
Prepare learning modules
Write performance objectives
Prepare student learning activities
Develop performance tests
Prepare teacher materials

common learning content. They were checked for clarity, using the following criteria from the Indiana PBVE Management System, and restated if necessary:

1. A task has a definite beginning and end.

2. A task is an inherent part of a job.

3. A task is done in a relatively short period of time.

4. A task is amenable to testing in a real-life situation.

5. A task is composed of subtasks which are capable of sequencing into a terminal performance.

6. A task is the smallest bit of meaningful activity that is done for its own sake when viewed in relation to the total array of job activities performed by the job holder.

Analyzing tasks

Each task within each domain was analyzed to identify the stepwise procedures (elements) followed from initiation of a task to its successful completion. A task analysis lists the elements necessary to perform a task and identifies the decisions the worker makes in performing the tasks (see sample in Appendix J). A complete discussion of task analysis for PBVE is presented in West and Hornback (1978).

When task analyses were completed for all tasks in a domain, the staff identified subtasks. They grouped related elements of the task analysis into general procedural steps for each task. Generally, subtasks contain much common learning content. Sometimes it is necessary to regroup tasks into a different domain if the majority of the subtasks and associated learning content are not the same. A sample list of subtasks common to the primary care domain are listed on Appendix K.

Identifying learning content

The staff prepared a learning content identification sheet (West & Hornback, 1978) for each task in the domain, on which each element of each subtask in the domain was studied to determine the concepts, principles, skills or processes, and procedures needed to be learned before the task could be performed. They identified only the learning content necessary to perform the task and omitted all unessential information. The learning content was divided into the following four categories by subtask:

1. Generalizable cognitive knowledge common to all tasks in the domain (e.g., concept of medical asepsis).

2. Cognitive knowledge specific to a task in the domain (e.g., concepts and rules for giving a cleansing bath).

3. Transferable skills common to all tasks in the domain (e.g., washing hands using aseptic technique).

4. Skills specific to a class of tasks in the domain (e.g., giving a cleansing bath).

A sample learning content identification sheet is in Appendix L.

Determining content limits

The content limits set the allowable testing range for the content identification established as essential to the performance of the task(s) in a domain (West & Hornback, 1978). The staff prepared a data sheet to identify the allowable variables to be tested for each task in the domain and for each subtask common to the domain (Appendix M). The variables listed on the data sheets are present in varying degrees in real life situations depending on equipment used.

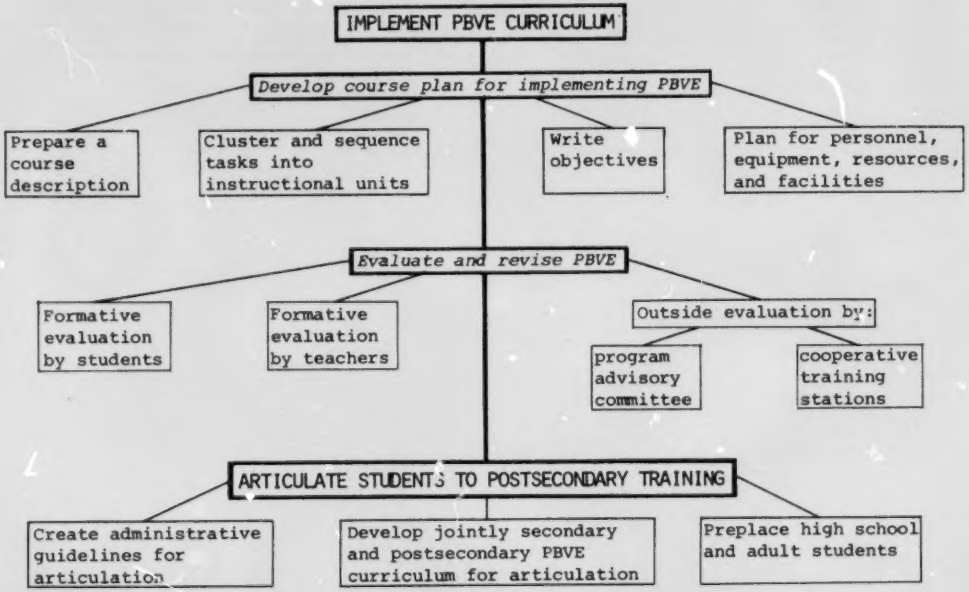
Preparing performance tests

According to the Indiana system, students' performance is measured with either a criterion-referenced test or a domain-referenced test. Recent research suggests that criterion-referenced tests tend to be too narrowly written. The first tests constructed through the NCAVS project were criterion-referenced tests, but now domain-referenced tests are being prepared. The criterion-referenced tests require each task to be tested, but domain-referenced tests allow a group of tasks to be tested at one time.

Criterion-referenced test. A criterion-referenced test is an evaluation tool used to measure attainment of a performance objective, which is a statement in precise measurable terms of a task-related behavior to be exhibited by a learner under specified conditions. In the early part of the project, the staff wrote a general performance objective (terminal objective) for each task, a specific performance objective (enabling objective) for each subtask, and a criterion-referenced test for each task (Appendix N).

Domain-referenced test (DRT). A domain-referenced test is an evaluation tool used to measure the knowledge and skills

FIGURE 3: Local management plan for PBVE; implementation and articulation sections


IMPLEMENT PBVE CURRICULUM
Develop course plan for implementing PBVE
Prepare a course description
Cluster and sequence tasks into instructional units
Write objectives
Plan for personnel, equipment, resources, and facilities
Evaluate and revise PBVE
Formative evaluation by students
Formative evaluation by teachers
Outside evaluation by:
program advisory committee
cooperative training stations
ARTICULATE STUDENTS TO POSTSECONDARY TRAINING
Create administrative guidelines for articulation
Develop jointly secondary and postsecondary PBVE curriculum for articulation
Preplace high school and adult students

which are identified in the content identification as generalizable and transferable among all tasks in a domain. The content limits establish the set of variables to be tested. In the later part of the project, the staff constructed a DRT for a random sample of the variables representing each specific domain of tasks. The formats for preparing a DRT and a sample test are in Appendixes O and P.

Preparing learning modules

The project prepared 22 individual PBVE modules (Appendix Q). Learning modules are not required for PBVE, but the system works well with this kind of individualized instruction. Each module contained a general performance objective, specific performance objectives, student learning activities, materials needed for learning activities, evaluation tools or tests, and a teacher's guide sheet, which listed the teacher's responsibilities and the material and equipment needs of the module. The general performance objectives are met when all the specific performance objectives are achieved.

Implementing PBVE curriculum

Developing a course plan for implementing PBVE

The project staff developed a course description, which identified the prerequisite courses needed, the expected training time, and the points of entry and exit of the student to and from the training. The course plan included instructional units of clustered and sequenced tasks, objectives, and the personnel, equipment resources, and facilities needed to implement the PBVE curriculum (see Figure 3). The planning sheet used by the NCAVS staff to prepare a course plan is in Appendix R, and a teacher guide sheet which summarizes PBVE curriculum is in Appendix S.

Evaluating and revising PBVE programs

Using the formative evaluations by students and teachers and outside evaluations (Appendixes A, B, and C), the NCAVS school administration has been able to update and revise programs to better meet the actual training needs of the community.

Articulating students to postsecondary training

One purpose of the project was to demonstrate that PBVE curriculum could provide a means for students to articulate between secondary and postsecondary vocational programs. In the fall of 1978 the local school system, in conjunction with Indiana Vocational Technical College Regions 4, 6, and 8, developed an articulation plan which provides for high school and/or adult students to articulate into postsecondary programs (Appendix T). The plan outlines administrative guidelines and procedures by which to jointly develop curriculum that will provide a basis for students to articulate between secondary and postsecondary programs. The staff developed eight DRTs common to the job titles *nurse aide* and *medical assistant*. Four high school students passed the eight DRTs and were preplaced into IVTC-Region 8 medical assistant program. The students were enrolled into a medical terminology class and a pharmacology class. The students completed the hours and earned a total of 12 quarter hours at IVT while completing requirements for their high school diplomas. During the articulation field test, adult students were also preplaced into the IVTC medical assistant program.

During 1977-78 Indiana was conducting another project, funded by the U.S. Office of Education (West, 1977), in which two secondary vocational instructors and a postsecondary instructor were to jointly develop a performance based curriculum for the machine shop area. The NCAVS machine shop instructor was designated to work on the project to help establish the link between secondary and postsecondary programs. The same techniques for PBVE curriculum development were used by both projects. The domain-referenced tests developed for machine shop in the 1977-1978 project were field tested at NCAVS and other test sites during the spring of 1979. The DRTs were revised before mass field testing in the fall of 1979. Following the field testing a basis for articulation of machine shop students could be established.

CHAPTER III

Findings and Conclusions

Field testing the system

Findings

During the 1978 spring semester, the PBVE material developed by the project was field tested at NCAVS. During the 1978-1979 school year, the NCAVS health occupations PBVE program was implemented to demonstrate that the total local management plan, including the grading, recording, and evaluation systems and the learning modules worked. At this time a management module was also developed to orient the twenty health occupations students to the PBVE system. During the spring of 1979, four health occupations students who had completed the NCAVS health occupations PBVE program articulated into the IVTC-Region 8 medical assistant program, thus completing the implementation of the entire local PBVE management plan.

Although the health occupations program was selected for field testing, it was not the only vocational program to develop performance based curriculum. Table 1 summarizes the PBVE curriculum developed by 1978. By 1979, the following 12 programs of NCAVS had developed and begun implementing PBVE:

Agribusiness Education

Building Trades

Cooperative Office Education

Distributive Education

Food Management

Graphic Arts

Health Occupations

Home Economics Related Occupations

Industrial Cooperative Training

Intensive Office Laboratory

Machine Shop

Welding

TABLE 1: Summary of NCAVS PBVE Curriculum Development, 1978

Curriculum development	*Program area*			
	Health occupations	*Home economics related occupations*	*Business education*	*Machine shop*
State matrix	X			
Community survey	X	X	X	X
Local matrix	X	X	X	X
Job titles selected from local matrix for curriculum development . .	X, 2	X, 2	X, 2	X, 1
Task inventories obtained or prepared for job titles selected	X	X	X	X
Task validated for job titles	X, 2	X, 2	X, 1	X, 1
Core tasks selected for curriculum development .	X	X		X[a]
PBVE curriculum development (task analysis, learning content identification, content limits, CR test, learning activities of modules)	X, 22	X, 3		X, 1[a]
PBVE modules field tested with NCAVS students .	X, 22			

NOTE: X=curriculum development completed; X,n=curriculum development completed for specific number.

[a]Curriculum development completed in West, 1977.

In each of these 12 program areas, the staff:

Conducted community surveys.

Prepared local matrixes.

Selected job titles for curriculum development.

Obtained task inventories for job titles.

Validated tasks for job titles.

Selected core tasks for all job titles.

Grouped core tasks into domains.

Prioritized domains for teaching.

Prepared course outlines.

Of the 22 learning modules that were prepared by 1978, five are currently being used by all vocational programs in the NCAVS.

A list of the PBVE modules developed during the project is found in Appendix Q. Table 2 summarizes the results of the field test of some of the PBVE modules and shows that students considered the modules acceptable and useful. The students, who had varying academic achievement levels, mastered the tasks included in the PBVE modules.

The curriculum prepared in the machine shop area is to be field tested in both secondary and postsecondary programs to determine if articulation of students between the two levels is realistic. The instructors used the learning content identified for the tasks in the machine shop domain to establish content limits for this curriculum. They then prepared a test acceptable to both secondary and postsecondary levels.

Conclusions and recommendations

The results of this project are important to vocational administrators and teachers in Indiana because they show that the local PBVE management plan developed for the NCAVS is capable of being implemented at the local level. Any vocational school could adapt the plan in its local community. Staff can be trained through proper inservice to redirect traditional curriculum to a PBVE curriculum. The project has demonstrated how the change to PBVE programs can be done on a gradual basis without disrupting the efficient operation of the existing programs.

The field test of the local management plan showed that students were receptive to PBVE and that the curriculum met the individual needs of students according to their own goals,

TABLE 2: Summary of field test of health occupations PBVE modules

Module	*Percent responding*			
	Satisfactory student performance[a]	*No student problem with vocabulary*[b]	*No student problem with content*[c]	*Student value*[d]
PBVE management system (*n=40*)	100	88	100	100
Circulatory system (*n=20*)	100	88	88	100
Skeletal system (*n=20*)	100	95	90	100
Muscular system (*n=20*)	100	90	100	100
First aid (*n=14*)	100	100	100	100
Vital signs (*n=7*)	100	100	100	100
Handwashing (*n=7*)	100	100	100	100
Basic nursing skills (*n=7*)	100	100	100	100
Baths (*n=7*)	100	100	100	100
Rules and regulations (*n=40*)	100	97	100	100

Note: The criterion used was student performance of senior health occupations cooperative education students who were 100 percent Caucasian, 20 percent male, 80 percent female, 50 percent college-bound. The staff at NCAVS were 100 percent Caucasian, 64 percent male, 36 percent female, 94 percent bachelor's degree or more.

[a]Mastery of performance in two or less trials.

[b]Student marked *too hard* category two or less times.

[c]Student marked *hard to follow* or *too difficult* categories two or less times.

[d]Student marked *useful* category 50 percent or more where it was applicable.

aptitudes, abilities, and motivations. The PBVE learning modules permitted the students to self pace their learning, while giving them the knowledges, skills, and attitudes required for the tasks of a job.

The cooperative development and use of PBVE curriculum by secondary and postsecondary instructors in the New Castle area provided a basis by which students could articulate between programs without loss of training time or money invested.

The project staff encountered two major problems that had to be identified and overcome before PBVE curriculum could be developed and implemented. The first problem was the amount of time required to develop performance based curriculum. The second was the depth of commitment required of the vocational staff members. Both problems were overcome by the staff because of their desire for a quality vocational program.

Based on the findings and conclusions of this study, the project staff recommends using the local PBVE management plan to further develop and implement PBVE programs in local schools. It recommends that all occupational areas within a school have PBVE programs, that PBVE curriculum be jointly developed by secondary and postsecondary instructors, and that additional occupational areas be selected for PBVE curriculum development. The staff further recommends that one job title be completely developed and field tested to determine what problems have to be overcome before students can freely articulate between programs without loss of training time. Since the development of PBVE curriculum is so time consuming, consideration should be given to developing a cooperative effort among vocational administrators and instructors to prepare PBVE curriculum.

APPENDICES

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APPENDIX A: Student evaluation form

Module Title _____

Name _____

Purpose: To obtain constructive criticism and complimentary comments concerning the learning activities in order to improve your training program.

Directions: Place a check mark in the columns that best express your feelings about each item you used. You do not have to sign the evaluation form but identification is helpful to permit follow-up. You will not receive any reprisal because of your comments.

	VOCABULARY			*CONTENT*				*VALUE*			
ITEM TO BE EVALUATED	*Too easy*	*Just right*	*Too hard*	*Complete*	*Boring*	*Hard to follow*	*Too difficult*	*New inform.*	*Old inform.*	*Useful*	*Not helpful*
Instructions											
Goal											
Objective											
Lecture											
Demonstration											
Texts											
Transparencies											
Audio-tape											
Slides											
Work sheets											
Discussion groups											
Interviews											
Tours											
Practice											
Master test											

Additional suggestions or comments concerning module, criterion-referenced test, or learning activities:

Source: Smalley & Bilger, 1977, p. 931.

APPENDIX B: Teacher formative evaluation

Module title _____

Instructor's name _____

Purpose: To provide a process to evaluate and make appropriate changes toward course improvement.

(1) To compare each performance objective to its criterion-referenced test.
(2) To determine student's attitudinal evaluation toward the learning experience.

Directions: From the student performance records, module evaluation forms, and personal interviews compile the appropriate information on each module or learning experience.

	STUDENT PERFORMANCE		*STUDENT EVALUATION FORM, PROBLEM AREAS*			*STUDENT INTERVIEW, PROBLEM AREAS*		
STUDENT NAME	*Percentage of accuracy obtained at mastery level*	*Number of times needed to reach mastery level*	*Vocabulary*	*Content*	*Value*	*Vocabulary*	*Content*	*Value*

APPENDIX B *continued*

Analyze the information listed on the formative evaluation by answering the following questions.

Vocabulary:

1. Do the general performance objective and the specific performance objectives clearly state the performance, conditions, and level of accuracy required of each student?

2. Is the reading level appropriate for the student population?

Content:

1. Has the student shown mastery of each specific objective before trying to master the general performance objective?

2. Is the general performance objective broken down into all necessary specific objectives?

3. Do the learning activities provide necessary information and experiences needed to master the specific performance objectives?

4. Has the student received guidance and feedback for each procedure practiced before taking the master test?

Value:

1. Does the student like the learning activities selected?

2. Is there another appropriate learning activity for the specific performance objective?

3. Does the student have a learning disability?

4. Does the student have a positive learning attitude?

APPENDIX C: Evaluation by training station

Training station _____ By _____

1. Has participation in program been valuable to you?
   Yes____ No____
   Comments:

2. In your opinion is the program beneficial to your training station? Yes____ No____
   Comments:

3. Do you feel the students possess the basic skills expected of a beginning employee? Yes____ No____ If no, please explain:

4. What would you consider the greatest benefit to you from participation in the program?

5. What would you consider the biggest problem that you have in working with this program?

6. What changes would you recommend for succeeding years?

   a. Additional basic skills needed _____

   _____

   b. Orientation to job _____

   _____

   c. Attitudes _____

   _____

   d. Other _____

   _____

7. Would you be interested in participating in the program again?
   Yes____ No____
   Comments:

APPENDIX D: Health occupations program performance based education class record sheet

SAMPLE
MODULE
Objective
Trial
Date complete

NAME OF STUDENT	*HANDWASHING*		*BASIC ROUTINE PCDRS.*	*VITAL SIGNS*				*MAKE A PATIENT'S BED*	
	Obj.1	Obj.2	Obj.1	Obj.1	Obj.2	Obj.3	Obj.4	Obj.1	Obj.2

APPENDIX E: Grading system health occupations

Each student is required to participate in classroom instruction, youth organization, and work experience to receive credit for the program. The classroom instruction will be given using a performance based learning approach. The grading system will be explained for each segment. The final grade will be an average of the three parts: 1/3 classroom instruction, 1/3 youth organization, and 1/3 work experience. But if any one segment is not completed the student will receive an *F* for the six weeks.

Sample: Student P received an *A* in classroom instruction, *D* on youth organization, and *B* on work experience.

The four-point system:
4 pts. for *A*
3 pts. for *B*
2 pts. for *C*
1 pt. for *D*
0 pt. for *F*

The student's grade would be calculated as follows:

Classroom *A*	4 pts. x 1 *(A)*	= 4
Youth organization *D*	1 pt. x 1 *(D)*	= 1
Work experience *B*	3 pts. x 1 *(B)*	= 3
	TOTAL POINTS	8

$\frac{8 \text{ points}}{3 \text{ parts}} = 2.7$ Six-week grade on report card = *C+*

The semester grade is an average of the three six weeks grades.

Classroom instruction grading system

The classroom instruction is based on a performance based learning approach. Each student is given the competencies that must be completed before placement on-the-job and before completion of the program. Each competency has a self-contained learning module written to teach the task. The student may complete the learning modules at his/her own speed but a minimum standard of time has been set to insure the student's progress. Each module has an estimated time needed to complete it.

The classroom grade will be determined by the percentage of time spent on the completed modules plus the percentage of accuracy obtained on the modules. The number of modules to be completed will be determined by the estimated time allowed per module, plus the class time available.

APPENDIX E *continued*

SAMPLE GRADE:

Percentage of accuracy obtained on the student's completed modules = 95 percent

Percentage of time for student = 75 percent

The estimated time allowed on 6 modules completed by student = 11 hours

Amount of time taken by student = 15 hours

$$\frac{\text{Estimated time on module}}{\text{Time taken by student}} \times 100 = \text{Percentage of time}$$

$$\frac{11}{15} \times 100 = 75 \text{ percent}$$

CLASSROOM GRADE:

Scale for grading: *A* = 90 -- 100 percent

B = 80 -- 89 percent

C = 70 -- 79 percent

D = 60 -- 69 percent

$$\frac{\% \text{ of accuracy} + \% \text{ of time}}{2} = \text{Percentage of classroom grade}$$

$$\frac{95 + 75}{2} = 85 \text{ percent} \qquad \text{Classroom grade} = B$$

Work experience

An evaluation form will be given to your work experience supervisor. The supervisor will evaluate your work using the evaluation form, discuss the evaluation with you individually, and return it to the health occupations coordinator. The point grading system described on previous page will be used to grade the employer's evaluation.

A sample employer's evaluation is included. The coordinator will determine the final grade for your work experience.

Each week you will keep a diary of your work activities. This must be completed and returned to your coordinator before your work experience evaluation form will be graded. A sample diary sheet can be obtained from your coordinator. The diary will be graded as satisfactory or unsatisfactory.

APPENDIX E *continued*

Worksheet #5: New Castle Area Vocational School on-the-job student evaluation

Student Mary Pea Date 5-11-78

Evaluator Harry Brown Score C (2.2)

Training station L.I.V.E. Past evaluation score D

Circle appropriate number under each heading:

Attendance
4 Perfect
(3) Absent 1-2 days, but called in
2 Attendance erratic
1 Absent too much

Punctuality
4 Never late
(3) Rarely late by 2 or 3 minutes
2 Sometimes late by 5 minutes
1 Usually late

Personal appearance and cleanliness
4 Has proper dress and appearance acceptable for work assignment
3 Usually neat and clean
(2) Sometimes untidy or poorly dressed
1 Sloppy and unkempt

Attitude towards supervisors and/or fellow workers
4 Excellent cooperation, takes directions well
3 Usually cooperates and takes directions
(2) Frequently difficult to work with
1 Does not cooperate or take directions

Quality of work
4 Very neat and accurate
3 Interested and careful
(2) Shows little concern but passable
1 Shows little interest and is careless

Acceptance of responsibility
4 Eager to accept a new challenge
3 Usually accepts a new task
(2) Usually hesitant on a new problem
1 Completely avoids new responsibilities

Response to instructions
4 Needs little instruction to complete job
3 Needs moderate amount of instruction
(2) Needs a great deal of instruction
1 Unable to follow instructions

Quantity of work
4 Always busy
3 Usually busy
(2) Often needs prodding
1 Usually loafs

Safety practices
4 Very conscientious about safety habits
3 Is a safe worker most of the time
(2) Shows little concern for safe working habits
1 Negligent enough that an injury is possible

Initiative
4 Usually looks for things to do
3 Sometimes will look for things to do
(2) Rarely looks for things to do
1 Must be told to do everything

APPENDIX E *continued*

Care of equipment and facilities

4 Is very mature in treatment of equipment, etc.
3 Usually shows concern for equipment
(2) Often abuses equipment, materials, etc.
1 Shows little or no respect for property of others

Evaluator's comments: Mary needs help in planning her work schedule to accomplish more work with greater efficiency. Safety rules need to be reviewed with her.

Evaluator's signature Harry Brown *Date* 5-11-78

Score: 3+3+2+2+2+2+2+2+2+2+2=24

$\frac{24}{11} = 2.2$ 2.2 on 4.0 scale = C

Youth organization

A checklist has been prepared listing the various activities in which the student may participate. Your six week grade is based on the following scale:

Participated in 4 club activities = *A*
Participated in 3 club activities = *B*
Participated in 2 club activities = *C*
Participated in 1 club activity = *D*
Participated in 0 club activities = *F*

Checklist for youth organization participation

_____ 1. Attend club meeting
_____ 2. Serve on committee
_____ 3. Chair committee
_____ 4. Run for office
_____ 5. Work on club activity
_____ 6. Attend state meeting
_____ 7. Attend national meeting
_____ 8. Enter skill contest
_____ 9. Conduct meeting
_____ 10. Work on money raising drive
_____ 11. Did special project for club *(classroom tutor, bulletin boards, special teacher assignment)*

APPENDIX F: Survey of business

Name_____

Business_____

Position_____

Phone_____

NOTE: *All items pertain to New Castle Area Vocational School, only, and all answers will be kept strictly confidential. Any answers or comments made will not place any obligation on your business. This is for general information only.*

1. TOTAL NUMBER OF EMPLOYEES:
   a. Number of full-time employees (35 hours/week or more) _____
   b. Number of part-time employees (less than 35 hours/ week) _____

2. ESTIMATED TOTAL EMPLOYMENT IN *(not including seasonal employees)*:
   1975_____
   1977_____
   1979_____

3. TOTAL NUMBER OF NEW EMPLOYEES HIRED IN THE LAST CALENDAR YEAR (1975):
   a. Number of new employees that filled newly created positions _____
   b. Number of new employees that filled vacated positions _____
   c. Number of new employees without prior experience _____

4. TOTAL NUMBER OF EMPLOYEES CHANGED TO NEW JOBS OR POSITIONS WITHIN YOUR ORGANIZATION DURING THE CALENDAR YEAR 1975: _____

5. WHEN YOU HAVE A JOB OPENING(S), WHICH OF THE FOLLOWING SOURCES DO YOU USE TO HIRE WORKERS? *(Mark the spaces which are most appropriate for each item a. through g.)*

	Often	Sometimes	Never
a. State employment service . .	___	___	___
b. Private employment agencies	___	___	___

APPENDIX F *continued*

c. Advertising and want ads . .	___	___	___
d. Friends and relatives . . .	___	___	___
e. Direct company application *(walk-ins)*	___	___	___
f. School cooperative programs *(DE. COE, etc.)*	___	___	___
g. Other *(Please describe:* ___ _____) . . .	___	___	___

6. WOULD HIGH SCHOOL COOPERATIVE VOCATIONAL PROGRAMS BE ATTRACTIVE TO YOU IN OBTAINING ADDITIONAL QUALIFIED EMPLOYEES? Yes _____ No _____

   a. If above answer is *no*, please identify changes/additions needed to make high-school-trained personnel an attractive source of qualified employees.

   _____
   _____
   _____

7. WOULD YOU CONSIDER PERMITTING A QUALIFIED VOCATIONAL STUDENT TO ENTER YOUR PLACE OF BUSINESS OR AREA OF ACTIVITY AS A WORKER IN ORDER TO GET THE EXPERIENCE IN AN OCCUPATION? Yes_____ No_____

8. WOULD YOU BE WILLING TO HAVE YOURSELF OR AN EMPLOYEE VISIT A CLASS(ES) IN A PUBLIC SCHOOL TO EXPLAIN YOUR OCCUPATION? Yes_____ No_____

9. ARE THERE AREAS OF TRAINING EXPERIENCE NOT CURRENTLY IN THE PROGRAM THAT YOU FEEL THE PUBLIC SCHOOLS SHOULD PROVIDE? Yes_____ No_____

   a. If answer is *yes*, please explain.

   _____
   _____

10. HOW MANY STUDENTS WHO ARE ENROLLED IN HIGH SCHOOL COOPERATIVE VOCATIONAL PROGRAMS DO YOU HAVE WORKING IN YOUR BUSINESS? _____

11. HOW MANY STUDENTS WHO HAVE COMPLETED A HIGH SCHOOL COOPERATIVE VOCATIONAL PROGRAM DO YOU HAVE WORKING IN YOUR BUSINESS? _____

APPENDIX F *continued*

List the number of people employed by your firm in the specific job titles listed below.

A. OCCUPATIONS IN YOUR FIRM	B. No. PRESENTLY EMPLOYED	C. JOB OPENING INFORMATION
Job Titles Please list each different occupation in your firm or agency. Add descriptive words, classes, or grades that will clarify the nature of the job.	Number Total number of persons presently employed in each occupation listed.	CURRENT JOB OPENINGS No. of those jobs in your firm that are unoccupied or ready to fill immediately.
	TOTAL	TOTAL
Example: Clerk - Typist	3	1
Bookkeeper		
Bookkeeping Machine Operator		
Payroll Clerk		
Adding Machine Operator		
Calculating Machine Operator		
Duplicating Machine Operator		
Mimeograph Operator		
Offset Duplicating Mach. Oprtr.		
Typewriter Operator		
File Clerk		
Timekeeper		
Transciber Operator		
Mail Clerk		
Folding Machine Operator		
Messenger		
Receptionist		
Administrative Secretary		
Legal Secretary		
Medical Secretary		
Secretary		
Stenographer		
Office Manager		
Clerk-Typist		
Typist		

APPENDIX F *continued*

JOB OPENING INFORMATION	D. TRAINING					
ANTICIPATED JOB OPENINGS Job openings expected in the next 12 months for which employees will be actively sought.	Check major source or type of training where employees acquired skills needed for each job listed in column A.					
	High School	OJT or Apprenticeship	Trade Technical School	Jr. College	College	Other
2	X					

APPENDIX G: Summary report of community survey: Home economics related occupations

CHARACTERISTICS OF SURVEY POPULATION

Size of business	*Type of business*	*Location of business*
6 large	44 private	47 in Manpower Region 6
31 medium	6 public	3 in Manpower Regions 8 and 10
13 small		

Businesses included	*Surveys mailed*	*Surveys returned*	*% of surveys returned*
Restaurants . . .	34	13	38
Institution food services . . .	14	11	79
Child care services . . .	4	2	50
Housekeeping services . . .	11[a]	8[a]	73
TOTAL	50	26	52

[a]Survey was counted once in the total 50 surveys sent. Institutions answered for food service as well as housekeeping.

RESULTS OF COMMUNITY SURVEY

Job titles in local community	*Number now employed*	*Secondary/ Vocational*	*Post-secondary*
Fast food attendant . . .	117	117	0
Waitress	29	29	0
Dietary aide	25	25	0
Housekeeper (hotel, motel, restaurant, medical services) . . .	24	23	1
Cook	16	14	2
Bus person	15	15	0
Child care person	10	8	2
Car hop	9	9	0

APPENDIX H: Local NCAVS health occupations matrix

SUBCLUSTER	CATEGORY	JOB TITLES
PATIENT CARE SERVICES	Nursing services	Nurse aide
		Orderly
		Geriatric aide
	Mental health	Psychiatric aide/assistant
		Occupational therapy aide
		Special education aide
	Diagnostic	Laboratory aide
		Radiologic department aide
	Physical rehabilitation	Physical therapy aide
		Respiratory therapy aide
		Optometric assistant
	Ancillary	Pharmacy aide
		Mortician aide
DENTAL CARE SERVICES	Direct patient contact	Dental assistant
	Indirect patient contact	Dental receptionist
MEDICAL & CLERICAL SERVICES	Medical records services	Medical records clerk
		Insurance clerk
	Clinical	Ward clerk
		Medical assistant
ANIMAL CARE SERVICES	Nursing services	Veterinary aide/assistant

APPENDIX I: Purge criteria

X = An X beside a task in a given job title indicates that task *will be* included in the curriculum of that job title.

0 = An 0 beside a task in a given job title indicates that task *will not* be included in the curriculum of that job title (if, however, a given health agency desires to add the task for its own particular situation, that would be in addition to the standard curriculum).

1 = Frequency of performance
If used with an X, indicates it is included because the task is performed frequently; if used with an 0, it is excluded because of lack of performance.

2 = Percent responding
If used with an X, indicated 50% and over perform the task;
If used with an 0, indicates less than 50% perform the task.

3 = Task difficulty
It is used with an 0 *only* and indicates the task was excluded due to the consensus of the purging committee as being too difficult for the job title.

4 = Consequence of nonperformance
It is used with an X *only* and indicates that the task might be difficult or highly technical, but the risk to the patient, if the health worker did not perform the task, might be hazardous.

5 = Generalizability
It is used with an X and indicates that the task was included because it was a general knowledge task that might be utilized by the health worker, and if different job titles were being taught together, that particular job title would not be losing anything to have the task.

APPENDIX J: Task analysis guide

TASK ANALYSIS GUIDE

I. Task statement:

GIVE A CLEANSING BATH TO A PATIENT

II. Task performance cues:

Routine patient care, Doctor's orders, Personal request, Special need.

III. Task performance procedures:

A. When a decision must be made, indicate alternatives as *yes-no* answers to questions.
B. List performance steps by most frequently occurring sequence.

SUBTASK NUMBERS	*TASK ELEMENTS*	*DECISIONS* yes	no	*Go to step*	*LEARNING CONTENT*	*TOOLS, REFERENCES, WORK AIDS*
1.	Wash hands			2		
2.	Approach and identify patient			3		
3.	Assess patient to determine any special conditions that affect bathing patient .			4		
4.	Does patients condition warrent special technique for giving cleansing bath? . .	30	5			

continued on next page

APPENDIX J *continued*

SUBTASK NUMBERS	TASK ELEMENTS	DECISIONS yes	DECISIONS no	Go to step	LEARNING CONTENT	TOOLS, REFERENCE, WORK AIDS
5.	Greet and explain procedure to patient .			6		
6.	Does patient agree to having cleansing bath?	7	31			
7.	Assemble supplies and equipment to give a partial bath			8		
8.	Insure privacy			9		
9.	Arrange bath supplies at bedside			10		
10.	Does patients condition warrent special techniques in positioning?.	32	11			
11.	Position patient in bed for partial bath			12		
12.	Does environmental conditions require adjustments?	33	13			
13.	Check temperature of water			14		
14.	Lower bedrails and remove gown			15		
15.	Drape patient with bath blanket			16		
16.	Make a bath mitt by wrapping cloth around hand			17		
17.	Wash, rinse, and dry face			18		
18.	Wash, rinse, and dry neck and ears . . .			19		
19.	Wash, rinse, and dry arms, hands, and fingers			20		
20.	Wash, rinse, and dry genital area . . .			21		
21.	Change bath water and replace with fresh water			22		

22.	Place patient in lateral position if appropriate			23		
23.	Place towel on side of bed next to patients back			24		
24.	Wash, rinse, and dry back			25		
25.	Give backrub using lotion if desired . .			25a		
25a	Is patient to have a complete bath? . .	36	26			
26.	Remove bath blanket and dress patient .			27		
27.	Reposition to insure comfort			28		
28.	Remove and dispose of supplies and equipment appropriately			29		
29.	Tidy and secure call bell			29a		
29a.	Report and record.			30		
30.	Do you know how to perform special technique required to give cleansing bath? .	5	35			
31.	Consult supervisor and follow orders . .			EOT		
32.	Do you know how to position patient having a special condition?	11	35			
33.	Correct all environmental conditions within your capability			34		
34.	Seek help to correct environmental conditions beyond your control			13		
35.	Consult your supervisor and follow orders			EOT		
36.	Reposition patient in supine position and wash, rinse, and dry legs and feet .			37		
37.	Soak feet and hands in bath water. . . .			38		
38.	Dry feet and hands					

APPENDIX K: Common subtasks for domain: Give primary body care

	GIVE SKIN CARE	*GIVE A BACKRUB*	*GIVE A CLEANSING BATH*	*GIVE A PARTIAL BATH*	*GIVE PERINEAL CARE TO PATIENT*	*ASSIST PATIENT TO DRESS/UNDRESS*
Wash hands	7	1	1	1	4a	1
Greet patient	1,2,3,8 9,10,11, 14,18	2,3,4,5, 6a	2,3,4,5, 6,8,10,12, 25a,33	2,3,4, 6	1,2,4, 6	1a,1b,2 3,5,11
Obtain equipment	4,5,6, 25,26,27	6	7,9,	5,7,9, 17	3	4
Prepare patient for procedure	12,13,19, 21	7,8,9,9a 10,16,17, 21,22,23	11,13,14, 15,21,22, 23,26,27, 32,34,36	8,10,11, 18,19,22, 23	5,7,8	5a,6,6a 7,8,14, 17
Perform body care	15,16,17 20,24,28, 29,30,31, 32	11,12,13, 14,15,24	16,17,18, 19,20,24, 25,30,31, 35,37,38	12,13,14, 15,16,20, 21	9,10,11, 12,13,14, 15,16,17, 18	12,13,16, 18,19,19a, 20,21,22, 23,24
Discard and replace equipment	22	18,19	28,29	24,25	19,20	9,10,25
Chart procedure	23	20	29a	26	21	10a

APPENDIX L: Content identification sheet

SUBTASK	*CONTENT LIMIT*			
	Cell 1[a]	*Cell 2*[b]	*Cell 3*[c]	*Cell 4*[d]
1. Wash hands TAG element: 1	1. Concept and rules on medical asepsis a. Cause (Micro-organisms) b. Prevention c. Aseptic technique 2. Rules for handwashing a. Technique for 30 second handwash b. Technique for 2 minute handwash		1. Perform aseptic technique when giving patient care 2. Perform 30 second handwash	
2. Greet patient TAG elements: 2-6, 8, 10, 12, 25a, 33	1. Concept of appropriate communication skills a. Body language b. Verbal communication 2. Concepts and rules for human relation skills a. Assessment of patient's mental condition b. Assessment of patient's mental attitude 3. Concept and rules for	1. Concepts and rules for giving cleansing bath	1. Verbally greet patient 2. Identify patient 3. Insure patient's privacy 4. Explain procedure	1. Explain procedure for giving cleansing bath

APPENDIX L *continued*

SUBTASK	CONTENT LIMIT			
	Cell 1[a]	*Cell 2*[b]	*Cell 3*[c]	*Cell 4*[d]
	determining patient's physical condition a. Signs and symptoms b. Isolation/non-isolation 4. Concept and rules for privacy and procedures for insuring privacy			
3. Obtain equipment TAG elements: 7, 9	1. Concept and rules for care of equipment 2. Unit Floor a. Location of equipment b. Proper storage	1. List of equipment needed for cleansing bath		1. Obtain towel, washcloth, soap, water, bedrails, bath blanket, privacy screen, curtains, bed, bedside stand, Mrs. Chase, basin, gown, lotion/ alcohol
4. Prepare patient for procedure TAG elements:	1. Concept and rules for positioning a. Semi-Fowler	1. Concepts and rules for giving a cleansing bath	1. Adjust environmental conditions for bathing	1. Prepare patient for cleansing bath

11, 13-15, 21-23, 26-27, 32, 34, 36	b. Supine c. Lateral 2. Concept and rules of safety a. Bed position b. Patient position 3. Concept and rules of moving a patient a. Ambulatory b. Nonambulatory 4. Concept and rules for giving primary care to patient with external complications (bandages, cast, mechanical devises, dressings and prosthesis) 5. Concepts and rules for gowning patient a. Personal clothing b. Facility clothing c. Types of openings on garments 6. Concepts and rules for offering bedpan and/or urinal		2. Position patient appropriately for task 3. Insure patient's safety 4. Offer bedpan and/or urinal if needed 5. Gown patient appropriately	
5. Perform body care TAG elements: 16-20, 24-25, 30-31, 35, 37-38	1. Concept and rules for hygiene 2. Concept and rules of preventative skin care for the body 3. Concept and rules for	1. Rules for giving a cleansing bath a. Temperature of water b. Arrangement of supplies		1. Give a cleansing bath

APPENDIX L *continued*

SUBTASK	CONTENT LIMITS			
	Cell 1[a]	*Cell 2*[b]	*Cell 3*[c]	*Cell 4*[d]
	giving skin care a. Washing and drying techniques b. Massaging techniques c. Selection of lotions	c. Patient's comfort d. Procedure for changing water		
6. Discard and replace equipment TAG elements: 28-29	1. Concept and rules for discarding equipment a. Disposable b. Nondisposable 2. Concept and rules for replacing equipment a. Cleaning b. Repair c. Storage 3. Concept of medical asepsis (review) a. Discarding of infectious material 4. Rules for maintaining clean patient's unit		1. Discard and replace supplies and equipment appropriately 2. Clean patient's unit	

7. Chart procedure TAG element: 29a	1. Rules and procedures for for charting 2. Legality and ethics of charting 3. Medical terminology associated with charting primary body care	1. Rules for charting skin care 2. Concepts of medical terminology associated with skin care		1. Chart cleansing bath of patient

NOTE: The cells in this worksheet represent the following catergories of knowledges and skills:

[a]Cognitive knowledge (generalizable) to all tasks in the domain.
[b]Cognitive knowledge specific to a task in the domain.
[c]Skills (transferable) dommon to all tasks in the domain.
[d]Skills specific to a task in the domain.

APPENDIX L

APPENDIX M: Give primary body care

Data sheet A: Give primary body care--specific for each task

1. Give skin care
   a. Type
      (1) Wash
      (2) Massage
2. Give a backrub
   a. Type
      (1) Lotion
      (2) Alcohol
3. Give a cleansing bath
   a. Environmental condition
      (1) Room temperature
      (2) Draft
      (3) Privacy
         (a) screen
         (b) door
         (c) curtain
      (4) Light
4. Give perineal care
   a. Type of solution
      (1) Antiseptic
      (2) Soap and water
   b. Position
      (1) Dorsal recumbent
      (2) Lithotomy
5. Assist patient to dress and undress
   Type
   a. Personal garment
      (1) Pull over front
      (2) Back opening button or tie
   b. Facility garment
      (1) Front, back opening
      (2) Button
      (3) Tie
      (4) Sleeves
      (5) Sleeveless
6. Give a partial bath

APPENDIX M *continued*

Data Sheet B: Give primary body care--specific for subtask

1. Wash hands
   a. 30 second handwash
2. Greet the patient
   a. Procedure
      (1) Verbally communicate with patient
      (2) Identify patient
      (3) Insure patient
      (4) Explain procedure
3. Obtain equipment (per equipment sheet)
4. Prepare patient for procedure
   a. Drape patient
   b. Patient movement
      (1) Ambulatory
      (2) Nonambulatory
   c. Patient position
      (1) Semi-fowler
      (2) Prone
      (3) Fowler
      (4) Lateral
   d. Patient safety
      (1) Patient position
      (2) Bed position
   e. Condition of patient
      (1) Conscious
      (2) Unconscious
      (3) Normal skin
      (4) External complications
         (a) casts
         (b) dressing
         (c) brace
         (d) catheter
5. Perform primary body care
   a. Give skin care
   b. Give a back rub
   c. Give a cleansing bath
   d. Give a partial bath
   e. Give perineal care
   f. Assist patient to dress and undress
6. Dressing and replace equipment
   a. Type
      (1) Disposable equipment
      (2) Nondisposable equipment
7. Chart procedure
   a. Medical terminology
      (1) Abbreviations
   b. Charting procedures
      (1) Chart
      (2) Jot sheet
         (a) required information
         (b) signature

APPENDIX M *continued*

Data sheet C: Give primary body care--equipment and supplies

1. Equipment
   a. Bed
   b. Bedside stand
   c. Wash basin
   d. Patient unit with controllable temperature, ventilation and light
   e. Privacy screen/curtain
   f. Mrs. Chase
   g. Proxy patient
   h. Bedpan
   i. Urinal
   j. Bedrails

2. Supplies
   a. Towel
   b. Wash cloth
   c. Soap
   d. Water
   e. Body lotion
   f. Alcohol
   g. Antiseptic solution (peri care solution)
   h. Personal night clothes
      (1) Pull over
      (2) Back opening/tie
   i. Facility night clothes
      (1) Front or back opening
      (2) Button
      (3) Tie
      (4) Sleeves
      (5) Sleeveless
   j. Cast, leg or arm
   k. Dressing for wound
   l. Brace, body or extremity
   m. Catheter drainage bag
   n. Bath blanket
   o. Jot sheet
   p. Chart
   q. Bed linens

APPENDIX N: Sample criterion referenced test, master test part I bed bath

In the laboratory setting with a doll, you will satisfactorily give a complete bed bath following the procedure on the "Check-list for Bed Bath." Collect all the supplies and equipment needed and proceed with the bed bath. Assume your doll is unconscious.

U	S		
___	___	1.	Select and assemble all needed material before beginning bed bath.
___	___	2.	Wash hands.
___	___	3.	Identify patient.
___	___	4.	Explain procedure to patient.
___	___	5.	Raise bed to working height. Use good body alignment procedures.
___	___	6.	Offer bedpan or urinal to patient.
___	___	7.	Permit patient to give own mouth care. or Give mouth care to unconscious patient.
___	___		a. Turn patient's head to side facing you, place towel, and curve basin under chin.
___	___		b. Use applicator (with glycerin and lemon) to clean inside of mouth or 4" x 4" gauze wrapped around index finger to clean mouth.
___	___		c. Discard applicator and wash patient's mouth with mouthwash and rinse. Keep patient's head so fluid drains out of mouth.
___	___		d. Dry mouth and lubricate lips with vaseline.
___	___		e. Clean equipment and return to assigned place.
___	___	8.	Apply bath blanket correctly.
___	___	9.	Remove and dispose of linen correctly (either fold clean linen and hang over back of chair, or dispose of soiled linen in proper container, being careful not to touch uniform).
___	___	10.	Remove patient's gown correctly, being careful not to expose patient. Keep patient covered with bath blanket.
___	___	11.	Wash and dry face using correctly folded bath-mitt.
___	___	12.	Wash and dry arms correctly.
___	___		a. Protect bedding with towel under arm.
___	___		b. Basin of water on bed.
___	___		c. Soak hand.

APPENDIX N *continued*

U	S		
___	___		d. Dry carefully.
___	___		e. Remove basin to bedside stand without spilling.
___	___	13.	Wash and dry chest using circular motions. Towel across upper chest. Bath blanket to waist.
___	___	14.	Fold bath blanket to pubis, towel across chest.
___	___	15.	Wash and dry abdomen.
___	___	16.	Expose proximal leg.
___	___		a. Flex leg.
___	___		b. Put towel lengthwise under leg.
___	___		c. Place bath basin on towel.
___	___		d. Place foot in basin.
___	___	17.	Wash legs with long, firm strokes and dry well.
___	___	18.	Wash and dry feet and remove basin.
___	___	19.	Change water when cool: temperature at 110° to 115°F.
___	___	20.	Wash and dry back.
___	___	21.	Give back-rub using strong friction, and rotary movements. Give special attention to bony prominences, scapula, and sacrum.
___	___		a. Observe principles of body alignment.
___	___	22.	Wash or permit patient to wash genital area.
___	___	23.	Help patient to put on gown.
___	___	24.	Comb hair or provide assistance to patient as needed (mirror, comb, brush, towel, covering, etc.).
___	___	25.	Check nails: clean or cut as needed.
___	___	26.	Remove soiled items, clean equipment, and return to storage.
___	___	27.	Make occupied bed using good body movement and without raising dust by shaking linens. Carry linens away from uniform.
___	___	28.	Leave unit neat and tidy with bedside stand and call signal within easy reach of patient.
___	___	29.	Chart procedure.
___	___	30.	Complete task within (30) thirty minutes.
___	___	31.	Complete task satisfactorily.

Adapted from: Wood, 1972, pp. 200-201.

APPENDIX O: Planning sheet for domain-referenced test (DRT)

A. DRT format

1. Domain: Give primary body care

2. Tasks in domain:
   a. Give skin care
   b. Give a back rub
   c. Give a cleansing bath
   d. Give a partial bath
   e. Give perineal care
   f. Assist patient to dress and undress

3. Domain descriptor: Give primary body care

4. Content limits for domain (See Data sheets, Appendix M)
   a. Content limits per tasks; see Data sheet A
   b. Content limits per subtasks; see Data sheet B
   c. Content limits for equipment; see Data sheet C

5. Criteria for evaluation

   All items on the following checklist must be acceptable to pass test. See attached checklists

6. Test stimulus characteristics:

   Each student will be given a nursing order, proxy patient necessary supply and equipment list plus the conditions of the patient and environment for tests. The test will be conducted in a simulated patient's unit. A sample combination of variables for testing are given:

Test 1		Test 2
1.A-1		1.A-1
1.A-2		6.
2.A-1	Data sheet A	5.B-1
3.		5.B-2
3.A-3a		5.B-4
5.A-1		
5.A-2		
1.A		4.C-4
4.A		4.B-2
4.B-1	Data sheet B	4.E-2
4.C-4		4.E-4d
4.E-1		6.A-2
4.E-3		7.B-1
5.A		
5.B		
5.C		
6.A-1		
7.B-2		_____

APPENDIX O *continued*

1.G or 1.F
2.H-1
2.I-1
1.E
1.E
2.C
1.C
2.A
2.N
2.E
2.O
a.A
1.B
1.H
1.I

Data sheet C

7. Test response characteristics

   The student will give primary body care as directed by the nursing order. The student's performance must be acceptable according to the evaluation checklist.

8. Student instruction sheet for Test I

   Given an ambulatory, conscious patient and the following equipment and supply list, you will place the patient in a lateral position to give skin care, back rub and cleansing bath. You will chart the procedure on the job sheet. Your performance will be evaluated according to the attached checklist. All items on the check list must be acceptable to pass the test.

   EQUIPMENT LIST:

   Proxy patient, Mrs. Chase, pullover gown, dressing gown with front opening, soap, disposable wash basin, towel, bath blanket, body lotion, a job sheet, bed bedside table, bedpan and urinal.

B. Accessory materials to be with test

   1. Teacher instruction sheet
   2. Student instruction sheet
   3. Equipment and supply list
   4. Checklist for evaluation

APPENDIX P: Domain-referenced test one give primary body care

STUDENT INSTRUCTIONS:

Read the following nursing order plus the supply and equipment list. Perform the required activities using a proxy patient or Mrs. Chase in the stimulated patient's unit. All necessary equipment and supplies are present in the simulated unit.

Your performance will be evaluated by the instructor according to the attached checklist for Give Primary Body Care. All points on the checklist must be acceptable to pass the performance test.

NURSING ORDER:

Given an ambulatory, conscious patient and the following equipment list, you will place the patient in a lateral position to give skin care, back rub, and cleansing bath. You will chart the procedure on the jot sheet.

EQUIPMENT AND SUPPLY LIST:

Bed, bedside stand, bedpan, urinal, simulated patient's unit, privacy screen, Mrs. Chase, towel, wash cloth, soap, water, bath lotion, pullover, night clothes, back opening night clothes.

CHECKLIST:

See attached checklist

JOT SHEET:

Patient

Room

Information

APPENDIX P *continued*

CHECKLIST FOR GIVE PRIMARY BODY CARE

To pass the test all numbered steps must be acceptable.

U	S		
___	___	1.	Check chart or nursing order for instructions.
___	___	2.	Obtain equipment for procedure.
___	___	3.	Wash hands (30 second hand wash).
___	___	4.	Greet the patient.
___	___		a. Speak to patient
___	___		b. Identify patient
___	___		c. Insure patient's privacy
___	___		d. Explain procedure to patient
___	___	5.	Arrange equipment for procedure.
___	___	6.	Prepare patient for procedure.
___	___		a. Adjust environmental conditions
___	___		b. Assist with body eliminations
___	___		(1) Assist ambulatory patient to bathroom
___	___		(2) Offer nonambulatory patient bedpan or urinal
___	___		c. Position patient
___	___		d. Drape patient if appropriate
___	___		e. Insure patient's safety
___	___	7.	Perform primary body care (SEE INDIVIDUAL CHECKLIST FOR EACH TASK).
___	___		a. Give skin care
___	___		b. Give a cleansing bath
___	___		c. Give a partial bath
___	___		d. Give perineal care
___	___		e. Give a back rub
___	___		f. Assist patient to dress and undress
___	___	8.	Discard and replace equipment and supplies.
___	___	9.	Clean area.
___	___	10.	Chart procedure.
___	___		a. Jot sheet
___	___		b. Chart

APPENDIX Q: List of PBVE modules developed for NCAVS

PBVE management system

First aid

Rules and regulations

Select a job title

Get personal records in order

Fill out a job application

Circulatory system
(includes separate module on vital signs)

Muscular system

Skeletal system

Assist patient to move

Make a patient's bed

Position bed patient

Assist in feeding patient

Input-output

Urine elimination

Bowel elimination

Handwashing

Basic nursing skills

Baths

Give morning care to the patient

A.M./P.M. care

Gowning

APPENDIX R: Course curriculum outline planning sheet

1. Prepare a general course description. It should contain:

   - Who is to be taught.
   - What is to be taught.
   - Degree of skill to be obtained (Sample pp. 9--Module A-8).
   - Where training is to occur.
   - Employment conditions.

	Performance-Based	Traditional
2.	Prepare a list of tasks performed by each job title taught in course.	Prepare a list of units to be covered in course. Identify subunits for each unit.
	a. Prepare detailed list of tasks performed on the job by those job titles being trained. Tasks selected for curriculum development should (1) be performed by the level of worker to be trained (2) be critical to the job success of worker (3) be feasible to be taught in program	
	b. Verify the tasks for instructional purposes (similar tasks in one group).	Verify units and subunits to be taught, by an advisory committee.
3.	Cluster the tasks for instructional purposes. Core tasks to all job titles to be taught will be identified on the matrix.	Cluster units. Identify units common to all job titles. Identify units specific for each job title.
4.	Sequence the group of tasks for instruction.	Sequence the group of units for instruction.
	a. Structure learning hierarchy (what must be learned before other can be attempted)	a. Progress from simple to complex

APPENDIX R *continued*

Performance-Based	Traditional
b. Consider location of experiences and resources available	b. Consider location of experiences and resources available
c. Consider ways in which students learn	c. Consider ways in which students learn
d. Consider similar learning content needed between tasks within groups	d. Consider similar learning content needed between tasks within groups
5. Prepare General Objectives for the course.	Prepare General Objectives for the course.
Contain broad purposes or goals of the course.	Contain broad purposes or goals of the course.
Once the important units that will constitute the course content have been determined, the units clustered and sequenced, you can write a general objective for each instructional area.	Once the important units that will constitute the course content have been determined, the units clustered and sequenced, you can write a general objective for each instructional area.
6. Develop the course outline.	Develop the course outline.
a. List each unit to be taught in proper sequence	a. List each unit to be taught in proper sequence
b. List tasks to be taught per unit	b. List sub units to be taught per unit
c. Allocate instructional time	c. Allocate instructional time
d. Prepare list of resources (Printed and AV)	d. Prepare list of resources (Printed and AV)
e. List facilities, equipment and tools	e. List facilities, equipment and tools
7. Use forms prepared for NCAVS to write course outline.	Use forms prepared for NCAVS to write course outline.

APPENDIX S: Performance based vocational education instruction sheet

Step	Purpose
1. Identify tasks for a job title.	Task- Identified what the worker does on-the-job.
2. Group similar or related tasks into a domain (teaching unit).	Domain- Identified common teaching units.
3. Select a domain of tasks (units) for curriculum development.	Domain- Provided organization in developing program curriculum.
4. Perform a task analysis on each task in the domain.	Task Analysis- Identified the stepwise procedures needed to be followed from initiation of task to its successful completion. It identified decisions that must be made to perform the task.
5. Identify the subtasks for each task; all tasks within the domain should have a majority of the same subtasks. Regroup into different domain any tasks that do not have the same subtasks.	Subtask- Groups the similar elements of the task analysis into procedure steps for the task. Tasks with majority of common subtasks will have common skills and knowledges needed to be taught.
6. Complete a learning content identification sheet for each subtask in the domain. Four areas of learning content will be identified for each subtask.	Learning Content- Identified the skills and knowledges needed to be taught for the learner to have the background to master the tasks within the domain. It lists the limits of allowable teaching/ learning content to be presented.
7. Determine the test response desired for the tasks within the domain. Learning Content in Column I: Identify general knowledge common to the subtask for all tasks within the domain.	Test Response- Identifies generally what the learner must do, conditions and level of performance.

APPENDIX S *continued*

Learning Content in Column II: Identify skills common to performing the subtask for all the tasks within the domain.

Learning Content in Column III: Identify knowledge specifically needed to perform each task within the common subtask.

Learning Content in Column IV: Identify the skills needed specifically to perform each task within the common subtask.

Steps	Purpose
8. Prepare task/subtask/matrix to show relationship between transferable material between tasks and subtasks.	
9. Identify the limits for the learning content. Use three content limit sheets to term what should be tested.	Content Limit- Identifies what content learning items will be included on the domain referenced test. The variables for each content learning item will be stated. Promotes accountability.
10. Prepare a domain referenced test according to the following:	
A. Prepare Format Sheet	
(1) Write domain descriptor	Identified the general task statement of the behavior and content upon which the domain is formed.
(2) Write Content Limits for:	
(a) Tasks to be tested	Identifies task eligible for inclusion as test items.
(b) Variables of the subtasks to be tested.	Lists variables of the subtasks to be tested.

APPENDIX S *continued*

Step	Purpose
(3) State criteria to be used for evaluation	Specifies rules by which the adequacy of response to the test items can be judged--checklist.
(4) List Test Stimulus Characteristics	Specifies combinations of variables to be tested.
(5) List Test Response Characteristics	Specifies directions provided the learner in the test situation listing the subtasks of the domain.
B. Prepare Test Administration Sheet	
C. Prepare Student Instruction Sheet	States what student will be given. States conditions for testing. States procedure for student to follow in performing test. -List of subtasks-
D. Prepare all accessory material for test	Provides material to be given to the student before testing.
11. Prepare student learning activities	Identifies what activities in which the student should participate to master the knowledge and skills needed for the domain.

APPENDIX T: Administrative procedures of articulation process

Student information

1. Apply directly to program chairman if job title identified, either before or after seeing counselor.

2. Follow the appropriate procedure:

Secondary Student	Adult Student
a. Call for interview (chairman)	a. Call for interview (chairman)
b. Obtain form to document clinical training experience (160-190 floor hours)	b. Obtain form to document clinical training experience (160-190 floor hours)
c. Request high school to send transcript and domain referenced test to chairman	c. Request high school to send transcript or GED
d. Take domain referenced tests not attempted at secondary level, but obtained skills from on-the-job training	d. Take appropriate domain references

School information

1. Administer domain referenced tests.

2. Evaluate and assign credits for domains passed/articulated within course(s).

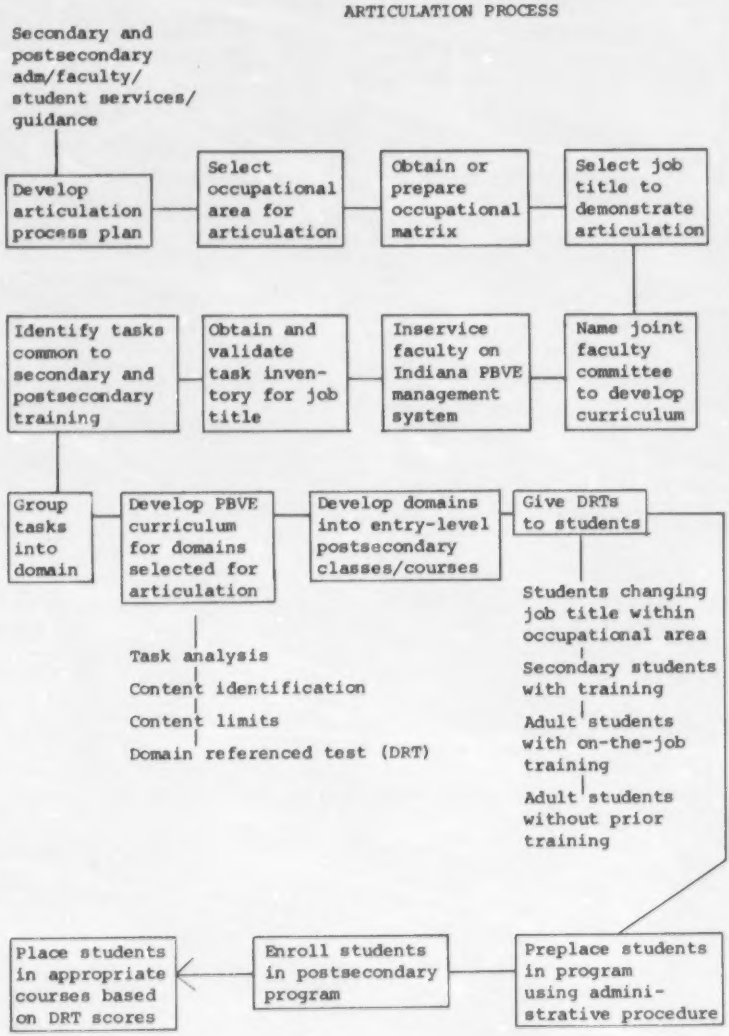
   a. Assign credits to each domain in course
   b. Grant credits for each domain in course

3. Preplace students at the appropriate level based on tests. Do not charge students for preplacement credit except on cost recovery basis for administrative costs.

4. Reassign any domains that student fails to perform following preplacement.

5. Provide for open entry-open exit for students at quarter breaks (3 months).

APPENDIX T *continued*


ARTICULATION PROCESS
Secondary and postsecondary adm/faculty/ student services/ guidance
Develop articulation process plan
Select occupational area for articulation
Obtain or prepare occupational matrix
Select job title to demonstrate articulation
Identify tasks common to secondary and postsecondary training
Obtain and validate task inventory for job title
Inservice faculty on Indiana PBVE management system
Name joint faculty committee to develop curriculum
Group tasks into domain
Develop PBVE curriculum for domains selected for articulation
Develop domains into entry-level postsecondary classes/courses
Give DRTs to students
Task analysis
Content identification
Content limits
Domain referenced test (DRT)
Students changing job title within occupational area
Secondary students with training
Adult students with on-the-job training
Adult students without prior training
Place students in appropriate courses based on DRT scores
Enroll students in postsecondary program
Preplace students in program using administrative procedure

GLOSSARY

Commonly used definitions of terms found in performance based planning.

Affective behavior--those behaviors which result from personal opinions, attitudes, feelings, beliefs, and values.

Cognitive behavior--those mental behaviors which result from acquisition and use of knowledge.

Competency--knowledges, skills, and attitudes necessary to perform a task.

Criterion-referenced test--an evaluation tool to assess the attainment of a performance objective.

Dictionary of Occupational Titles (DOT)--Department of Labor publication listing job titles and job descriptions.

Domain--group of tasks that possess common learning content; therefore form a teaching unit.

Domain-referenced test--a performance test which predicts student success within a defined set of variables.

Duty--a cluster of related tasks.

Element--an individual procedure step in a task analysis.

Job--tasks performed by an individual to achieve specific occupation requirements.

Job title--title assigned to a person who performs a specific group of tasks (e.g. nurse aide).

Job title analysis--a process which verifies jobs and tasks.

Learning module--a learning unit which is self-contained. The module consists of instructions, performance objectives, performance guide, and criterion-referenced test to measure the attainment of the performance objective(s).

Master test--criterion-referenced evaluation used to measure the attainment of a performance objective.

GLOSSARY

Matrix--a scheme for classifying and grouping job titles of an occupational area for the purpose of curriculum development.

Occupational analysis--a process of identifying employment needs and trends.

Performanced based vocational education (PBVE) programs--programs based on job research where (1) course content is identified through task analysis, (2) instructional content is identified in terms of learning content and content limits, and (3) student progress is assessed through use of performance tests.

Performance guide--a suggested learning sequence to achieve a performance objective.

Performance objective--a statement in precise, measurable terms of a task-related behavior to be exhibited by a learner under specified conditions.

Psychomotor behavior--those physical behaviors which result from a mental process.

Subtask--a procedure statement which groups similar elements of a task analysis together.

Task--An activity composed of certain stimulus and response elements, the results of which are either directly observable or indirectly inferrable. A task must possess six defining attributes (West & Hornback, 1978).

1. A task has a definite beginning and end.
2. A task is an inherent part of a job.
3. A task is done in a relatively short period of time.
4. A task is amenable to testing in a real-life situation.
5. A task is composed of subtasks which are capable of sequencing into a terminal performance.
6. A task is the smallest bit of meaningful activity that is done for its own sake when viewed in relation to the total array of job activities performed by the job holder.

Task analysis--the process of reducing a task into its affective, cognitive, and psychomotor behavioral components.

Vocational curriculum--program content, instructional materials, and media organized to prepare students for one or more occupations.

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